Nutrition News

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NUTRITIVE VALUE OF SCHOOL MEALS

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As a part of research done in appraising school lunch programs, laboratory determination has been made of the nutritive value of some school meals as actually eaten by the children. The meals analyzed followed the lunch pattern suggested for the National School Lunch Program, which includes ½ pint of milk as a beverage, 2 ounces of meat or other protein-rich food, ¾ cup of vegetable or fruit or both, 1 slice of bread or hot bread made of whole-grain or enriched flour or cereal, and 2 teaspoons of butter or fortified margarine. These amounts of food were planned for a 10- to 12-year-old child.

In all, 37 meals collected from four schools in one state have been analyzed for calories, protein, calcium, ascorbic acid, thiamine, and riboflavin content, and the results have been evaluated in relation to the estimated requirements of the children. A meal which provided one-third of the nutrients recommended by the National Research Council for the 10- to 12-year-old child was considered an adequate lunch; it contained at least 833 calories, 23 grams of protein, 0.4 grams of calcium, 25 milligrams of ascorbic acid, 400 micrograms of thiamine, and 600 micrograms of riboflavin.

Results of Analyses

Results of these analyses showed that all 37 meals met these allowances for calcium and riboflavin, and 30 for protein, but only 6 met the allowances for calories, and 4 for thiamine. Ascorbic acid values varied much more than those for other nutrients (from 1 to 75 milligrams) with 16 of the meals furnishing the 25 milligrams or more.

The meals analyzed did not include second helpings. Inasmuch as extra bread with butter or fortified margarine was available in all schools, and in some, second helpings of the main dish and vegetables were also available, it is considered probable that the caloric allowance may have been met in at least 27 of the 37 meals, but that the thiamine content fell short of the National Research Council recommendation.

Milk's Contribution

Since milk for the meals was analyzed separately, the nutritive value of meals eaten by children who did not drink milk was made available. Omission of milk materially reduced the protein, calcium, and riboflavin values of the meal. Instead of meeting 33 percent of the goal for the day, most of the protein and riboflavin values ranged from 20 to 30 percent, and the calcium values were less than 20 percent of the total daily allowance. In other words, milk to drink must be considered an essential part of the present lunch pattern if the meal is to meet recommended nutritional standards.

Nutrients Lacking

Further attention must be given to providing sources of vitamin C and thiamine in school lunches if the meals are to provide recommended amounts of these essential nutrients. Of the 16 meals providing at least 25 milligrams of ascorbic acid (one-third or more of the recommended allowance for the day), 15 contained citrus products. Tomato juice, mashed potatoes, and cole slaw were included in the sixteenth meal. The thiamine content of the meals was particularly low; only 54 percent provided one-fourth and 81 percent one-fifth of the goal for the day. Meals which provided 300 micrograms of thiamine (one-fourth the goal for the day) included mature legumes, or ground meat with potato or spaghetti, or peanut butter with potato. Meals with similar menus sometimes differed markedly in thiamine content, by as much as 100 micrograms. Probably more study is needed on the selection of foods which are good sources of vitamin C and thiamine, as well as on better methods of conserving these nutrients in the foods used.

Dr. Hathaway

Lunchroom managers in the four schools in which meals were analyzed were very cooperative, and they were eager for suggestions that would improve both the quality and the participation in the lunches served.

Meals from schools in other states are being analyzed this year. Information on the nutritive value of school lunches is needed on a broader scale than is available through this limited study in order to make sure that these noonday meals effectively meet the aims of the National School Lunch Program.

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Glances AT NUTRITION RESEARCH

Nutrition leaders, while forging ahead with research on little-known dietary essentials, are ever seeking newer knowledge of the more familiar nutrients as well. Research of both types are reviewed briefly here.

Distribution of Vitamin B_6—A microbiological method for the differential determination of the three components of vitamin B_6, pyridoxal, pyridoxamine, and pyridoxine, recently has been perfected. The findings confirm previous reports that pyridoxine constitutes quantitatively a very minor portion of vitamin B_6 of animal tissues, but is more evident in plant materials, occurring in as large or larger amounts than pyridoxal and pyridoxamine. It was suggested that, in the interest of accuracy, pyridoxine and vitamin B_6 should not be used synonymously.

—J. Biol. Chem. 176:1157 (Dec.) 1948.

Curd Tension and Number Tests—In a recent study on market homogenized milks it was concluded that milks with closely similar curd tensions (curd hardness) often vary widely in curd number (curd size). However, large numbers of tests indicated that lower curd tensions usually give correspondingly higher curd numbers. It was suggested by the author that soft curd milk be defined as a milk with a curd tension of 15 gm. or below. This corresponds to a curd number of 200 or above. Soft curd milk is especially desirable for infants and people who have poor digestion because it indicates a soft curd and, more important, small curds which yield a larger surface area for the action of digestive juices.

—J. Dairy Science 31:199 (March) 1948.

Role of Dietary Protein—Needs for dietary proteins vary considerably in health and disease. Newer knowledge of amino acid utilization in relation to protein hydrolysates, concentrates, and supplements has created new problems in planning for daily maintenance requirements. There are, however, a few principles which apply generally to dietary protein planning. Amino acids utilized for tissue reconstruction are not also available as a source of calories. Assuming that the digestive processes are reasonably efficient, an adequate assortment of absorbed amino acids can be secured whether from predigested hydrolysates or from concentrates of natural proteins such as skim milk powder. Choice between types of proteins may be guided by palatability and cost. Skim milk powder is an inexpensive protein supplement.

—J. Am. Diet. Assn. 24:938 (Nov.) 1948.

Iron Content of Milk—A new method of determining the iron content of milk has been used to check validity of older methods. This research was deemed important because of the large consumption of milk. An improved method of wet ashing was developed which reduced the danger of contamination. This work failed to indicate that the previously reported value of 0.32 mg. of iron per Kilo of milk was too low.

—J. Biol. Chem. 175:343 (Aug.) 1948.

TIMELY TOPICS

Dr. Hathaway

The author of this issue's lead article has contributed much to nutrition research on human beings. In 1947 she received the Borden Award in home economics for studies on human food requirements, particularly the synthesis and excretion of thiamine and riboflavin on synthetic and natural diets. Dr. Hathaway, who came to her present position via Cornell University, received her doctorate in biochemistry at the University of Chicago.

Child Life Research

A clearinghouse for research in child life has been established in the U.S. Children's Bureau, Federal Security Agency. Its purpose is to promote interchange of information on current studies. It will answer questions of research workers, on request, and will release a bulletin in 1949 on work now in progress. The clearinghouse will merely furnish accounts of the nature of projects as reported to it.

United Nations FAO

The Nutrition Division of the United Nations Food and Agriculture Organization is carrying on technical studies on food composition, dietary surveys, school feeding, nutrition education, and food technology. To date, twenty countries and territories have created official national nutrition councils to advise their governments on nutrition policies. They are also coordinating governmental and non-governmental agencies engaged in nutrition work.

FOOD HABITS IN NEW MEXICO

By Evelyn L. Blanchard, Ph.D., Nutrition Specialist
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To influence cultural groups to retain those food habits which are good and to supplement their diets where they are inadequate is the challenge to all nutritionists in education, public health, and extension.

In New Mexico we have four different cultural groups each having traditional dietary habits yet each has been influenced by the others. First there are the Indians who eat much as their ancestors did before the time of Columbus. Then came the Spanish whose descendants called Spanish-Americans, still remain a distinct cultural group. Across our southern border came the Mexicans and lastly from other states of the United States the Anglos or the English-speaking people. The Indians and Spanish-Americans compose a large proportion of the population of New Mexico.

Native Food Customs

The Navajo Indians first depended primarily on wild game for food but since they were semi-nomadic, they added corn, wild blossoms, seeds, and roots to their venison stew. That this diet was fairly adequate was indicated by the stature and physique of the Navajos. The Pueblo (or village) Indians had gardens which supplied corn, squash, melons, and beans. Perhaps their shorter stature has been influenced by a largely vegetarian diet.

The Spanish brought sheep, cattle, wheat, and fruits as apples, peaches, and pears. With the Mexicans came potatoes, tomatoes, chili peppers, and chocolate. The Indians and Spanish adopted certain of each others foods. Both found the Mexican chili added spice to their diets.

Diet Changes

Lastly came the Anglos with their contribution of highly purified foods. It is unfortunate that these foods have appealed so widely and contributed so much to poor nutrition in New Mexico as in other parts of the world.

Whole grains are giving way to refined cereals. The Indians make a type of bread called guayave. The whole corn is first ground on a slightly concave stone called a metate then it is mixed with water into a thin paste and baked before a fire on a flat heated stone. The paste is laid on in wafer-thin layers which is almost immediately baked and peeled off and a new supply of paste placed upon the stone. When a large number of them have been baked they are rolled tightly together, thus forming the guayave. Now the Indians make it primarily for festivals.

Mexican Tortillas

The Mexican tortilla is probably an adaptation of guayave. The corn is treated with lime to loosen the hulls from the kernels. The lime hominy is ground into a dough or mass that can be held together and rolled in balls. The balls are patted out into very thin, round cakes and cooked on a greased griddle or usually on top of the stove.

Traditional tortillas contain a high amount of calcium, as well as vitamins from the germ of the corn and they are believed by some to be partially responsible for the good teeth of Mexicans and Spanish-Americans.

Milk, Eggs, Meat

Cattle were introduced by the Spanish and from them the Indians learned the use of milk. Cornmeal mush and gruel made with boiled milk became a part of the Indian diet. Cheese also took its place as did other milk dishes. However, New Mexico has been so over-grazed that now there is not sufficient pasture for cows and hence not enough milk.

Eggs are also scarce, only 9 out of the 31 counties in New Mexico produce more eggs than they need.

Meat is not consumed in sufficient quantity by many New Mexicans, but both Indians and Spanish-Americans make better use of the entire animal than do the Anglos.

BRIDGEPORT SCHOOLS STRIVE FOR BETTER DENTAL HEALTH

By Mabel C. McCarthy, Supervisor, Dental Hygiene Division
Bridgeport, Connecticut Public Schools

Bridgeport has the unrivaled distinction of being the birthplace of Dental Hygiene. It was here, in the year 1914, that the profession was founded by the late Alfred C. Fones, D.D.S., universally recognized as the Father of Dental Hygiene. In the same year the first organized preventive dental clinic was introduced in the Bridgeport Public Schools.

There are four distinct phases to the program.

1. The cleaning and polishing of teeth and charting of mouth conditions; individual dental hygiene instructions while children are in the dental chair; and referring children either to the private dentist or municipal clinic for dental corrections, depending upon the financial status of the family.

2. Toothbrush drills and classroom lessons on tooth structure and functions of teeth, proper foods, cleanliness, and home care of the mouth.

3. Steriopticon lectures and films; essays, plays, poster contests, etc., by the pupils.

4. Educational literature, lectures, and films for parents; sending notices to parents to inform them on mouth conditions of their children; and making personal contacts with parents to encourage complete dental corrections.

Program's Objectives

It may be seen from this brief outline that three-quarters of the program is educational. The objectives are to instruct the child for his own protection and to enlighten parents so that the responsibility for good dental health may be placed where it rightfully must rest, that is, in the home.

As early as 1915, the slogan A QUART OF MILK PER CHILD was presented to children and their parents whenever the opportunity presented itself. This instruction in the classrooms of the Bridgeport Schools was, as far as is known, the first organized instruction as to diet in relation to dental and general health in any public

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DID YOU KNOW ?

—that there is more vitamin C in tomatoes grown in the sun than those grown in the shade?

—that we in the United States eat about 22 times more ice cream per capita than they do in Argentina?

—that girls born today can expect to live to be 70, boys to be 65?

—that there are at least 18 distinct varieties of cheese and over 400 individual kinds of cheese?

—that the public spends more money on cigarettes than on milk?

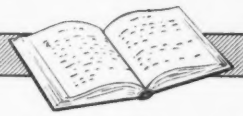
—that 1⅕ pounds of nut meats are eaten by the average American in a year?

—that bakers are now using more milk in bread making than they did in 1939?

—that recent progress on the continuous process of manufacturing butter is said to improve its keeping quality?

—that the Eskimo gets his vitamin D from the organs of animals and the eggs of birds?

THINGS YOU'LL LIKE TO READ



Eating for Health—Pearl Lewis. The Macmillan Company, New York, New York. 1948. $2.25.

Miss Lewis, an experienced dietitian, tells the layman why the body requires food and the role each type of food plays in proper body functioning. Dietary plans for normal persons of different age groups are outlined.

Health Teaching in Schools—Dr. Ruth E. Grout. W. B. Saunders Company, Philadelphia, Pennsylvania. 1948. $4.00.

Teachers in elementary and secondary schools will find this book valuable in all phases of health instruction. Dr. Grout provides information on health needs of children, home, school, and community. She shows how to apply modern education methods to health teaching and suggests concrete materials for effective health programs. The book is focused on teaching children to improve their own health behavior.

Live Long and Like It—C. Ward Crampton, M.D. Public Affairs Pamphlet No. 139. New York, New York. 1948. 20 cents.

Dr. Crampton recommends a well-managed health program for a longer and healthier life. He emphasizes the need for a geriatric examination and outlines a typical one. This pamphlet also discusses the common diet deficiencies and excesses of the man of 60. The dangers of obesity are emphasized by a comparison of death rates between fat and lean men. Also, the advantages of suitable exercise are stressed.

Overweight Is Curable—Wilfred Durfman, M.D., and Doris Johnson. The Macmillan Company, New York, New York. 1948. $2.75.

Overweight persons who need answers to the "whys" of dieting will find them in this book. It deals with the causes, effects, and treatment of overweight. It includes sample low calorie diets, and tables giving the composition and caloric value of some common foods.

BRIDGEPORT SCHOOLS STRIVE FOR BETTER DENTAL HEALTH

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school system. The success in putting across the educational program is largely due to the initiative and ingenuity of the dental hygienists.

Our normal staff consists of twelve dental hygienists, two half-time dentists, a supervisor, and a director. All services are free. The school dentists fill only pits and fissures in newly erupted first, permanent molars and extract only deciduous teeth.

Because of limited personnel dental services are confined to the elementary grades during the school year. Most pupils enter high schools with healthy mouths. We have found that the health education which these students have received during the first eight or nine years of school life has equipped them to care for themselves from then on.

During the months of July and August summer dental clinics are conducted in four centers where pre-school children and high school students may have their teeth cleaned and examined. We have not yet adopted the application of sodium fluoride as a preventive measure but such treatment is under consideration by this department.

Others Cooperate

Although the School Dental Hygiene Division functions under the direction of the Department of Health, the Department of Education plays an important part in the program. Too much credit cannot be given to principals and teachers for their wholehearted cooperation and valuable contribution to its success in carrying out recommendations made by dental hygienists.

In addition to the school dental clinic, the City of Bridgeport maintains a full-time dental clinic in the Municipal Health and Welfare Building where all phases of dentistry are practiced and where families with a limited income may receive dental services at a nominal cost.